GLYNN COUNTY
Beach and Dune Study

02401

Joe D. Tanner
COMMISSIONER

Charles M. Parrish, III
DIVISION DIRECTOR

Department of Natural Resources

OFFICE OF PLANNING AND RESEARCH
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June 21, 1973

Glynn County Board of Commissioners
Post Office Box 879
Brunswick, Georgia 31520

Dear Sirs and Madam:

As chairman of the Glynn County Beach and Dune Study Commission, I am pleased to submit to you the Glynn County Beach and Dune Study.

The study recommends the following legal provisions to assure adequate protection of your County's shores:

1. A Beach and Dune Protection District as an amendment to the Glynn County Zoning Ordinance,

2. An amendment to the Glynn County Building Code, based on the latest United States Weather Service hurricane and flood potential data,

3. A Vegetation and Dune Disturbance Ordinance.

My fellow Study Commission members - Dr. Tony Catanese, Dr. Eugene Odum, and Dr. George Oertel - concur in the recommendations. We strongly urge your earliest possible consideration and adoption.

Sincerely,

Charles M. Parrish, III
Director

CMP/slb

Attachment

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PROLOGUE

On March 26, 1973, Governor Jimmy Carter informed the Glynn County Board of Commissioners that the State of Georgia would, in response to their request, assist in the protection of the County's beach areas. Despite the obvious importance of shore areas to the County, existing laws appeared insufficient to guarantee protection in the face of impending development. Governor Carter volunteered the services of three State agencies - the Department of Natural Resources, the Attorney General and the Office of Planning and Budget - "to work with the (Glynn County) Commission and ... local planning agencies to develop appropriate protective ordinances and development standards for your beach areas."

In early May, Commissioner Joe D. Tanner of the Department of Natural Resources asked three prominent members of the State's University System to assist in the effort, acting as a three-man Study Commission. Dr. Tony Catanese (professor of City Planning at Georgia Institute of Technology), Dr. Eugene Odum (director of the University of Georgia's Institute of Ecology) and Dr. George Oertel (marine geologist at the Skidaway Institute) served in this capacity.

The study centered on St. Simons Island, where development appears more imminent than elsewhere on Glynn County's beaches. On May 8, 1973, the three-man Study Commission, along with various State officials, visited the Island. There, they were able to study the situation first-hand.

On May 17, preliminary recommendations and conclusions were presented to the Glynn County Commission by the Georgia Department of Natural Resources. This report represents an expansion of those recommendations. Hopefully, the recommendations can be implemented soon, providing a high degree of protection to one of Georgia's priceless natural resources, and, at the same time, maintaining traditional rights of property ownership and use.

Georgia Department of Natural Resources
Atlanta, Georgia
June 21, 1973

GLYNN COUNTY BEACH AND DUNE STUDY

INTRODUCTION

St. Simons, Georgia's most populated "barrier island," presents a mere one and one quarter mile of beach face to the Atlantic Ocean. As even a short-time resident can detect, this thin "edge" where land meets sea changes constantly. Twice daily tides come and go, leaving new things for the curious to examine briefly, only to sweep the slate clean hours later. Seasonal change brings change of somewhat longer duration from the beach's broad, gentle, sloping summer look to its narrowness and more pronounced slope of winter. Ever-present winds unceasingly sculpt the landscape as an artist never satisfied with his work. These processes, along with others less familiar to the casual beachcomber, make the "Edge of the Sea" one of nature's most dynamic environments. The old saying, "If you don't like the weather in Chicago, wait ten minutes," applies to every aspect of a coastal setting. Change, whether drastic or subtle, is a way of life at the shore.

ANATOMY OF A SHORE

As most scientists will attest to, generalizing about shorelines is risky business. Each beach, each island has its own characteristics and eccentricities. Shorelines along the Atlantic Coast of the United States, however, bear enough similarities that they can be considered a "family" with certain traits in common.

Up and down the East Coast lies a string of barrier islands, forming a first line of defense against the sometimes unruly and capricious Atlantic. Early explorers in the New World landed on barrier islands before setting foot on the mainland. Barrier islands are backed by fertile marshes, behind which lie what most people would consider terra firma. "The general geologic process which formed these islands is a matter of some scientific curiosity, but the Georgia islands were apparently formed from beach ridges which were isolated by a rising sea level" some 40,000 years ago during the Pleistocene Era.[1]

Off-shore, the ocean remains fairly shallow to the Continental Shelf, which in the case of the Georgia coast, lies about 80-100 miles out. The shallow ocean, particularly off-shore to about one-half mile out, facilitates formation of shoals, or sand bars.

On shore, the area between the high and low tide lines comprises the beach. Largely devoid of vegetation, the beach forms a uniformly sloping

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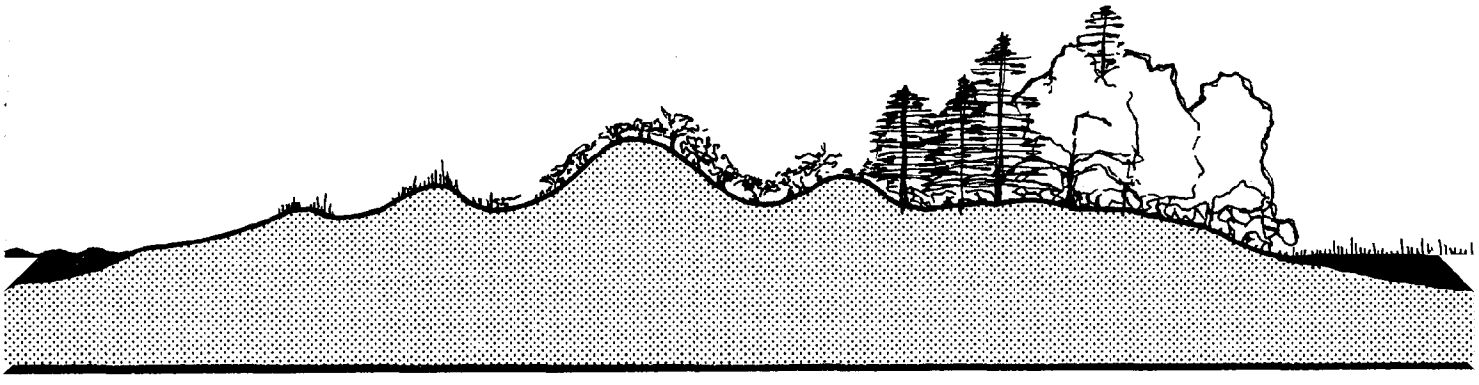
[1] The Georgia Coast: Issues and Options for Recreation. Charles D. Clement, University of Georgia, January 1971, pp. II-5.



Beach	Foredunes (Active)	Backdunes (Stable)	Pine - Hardwood Forest	Marsh

Typical Transect of St. Simon's Island

receiving platform for oncoming waves and tides. Biologist and sand castle architect alike know that water lies close to the beach surface, regardless of outward appearances. Intrenched in the wet subsurface sands a multitude of sea creatures await their next meal, carried in by the high tide. Of course, no one need describe recreational virtues of beaches.

Behind the beach lies the berm. Here, sand remains fairly dry - contrasted with the beach - and unaffected by normal tidal action. The berm devotes itself to sand transportation, relying on winds to carry dry sand parallel to the beach, and between beach and dunes.

Further landward from the berm rise dunes. "Sand dunes are the most important ecological feature of the coastal islands," states one report. [2] Most experts agree, for reasons to be described in the following sections. The most seaward dune group (often more than a single row) is commonly referred to as primary, or foredunes. Sea winds create relatively gentle slopes on the seaward side, steeper on the leeward side (unaffected by direct air currents). Young primary dunes are vegetated by "pioneer plants," grasses with spreading, mat-like (though shallow) root systems. Older primary dunes wear a mixed garb of pioneer plants and "scrub" vegetation, low-lying shrubs, vines, and scattered herbs.

Foredunes vary in size on a given shoreline, but are uniformly smaller than their landward "big brothers," the backdunes. Also, foredunes form as individual units, separate from one another, rather than continuous rows (as is the case with backdunes).

Backdunes are characterized by "higher" levels of plant life - live oak,

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[2] Ibid, p. V.

wax myrtle, and holly (all woody plants). As with foredunes, backdunes slope more gently on their seaward side, the result of past sculpting by on-shore winds. Unlike foredunes, however, they are stable, not subject to constant shifting and change. This is described more fully in the following section.

Between dune rows are slough, valley-like depressions running parallel to the beach. Protected from buffeting winds, sloughs permit their vegetative cover to mature more quickly than is possible on adjacent dunes. Consequently, shrubs and hardwoods may take on a healthier, bushier appearance than their counterparts perched on dune faces. In times of heavy rain or high storm water, the slough acts as a drainage ditch conducting excess water to lower elevations down beach. Afterwards, the slough may remain a holding pond or soggy area, pending evaporation of left-over water into the atmosphere or absorption by thirsty plants.

Behind the backdunes begins the heavily vegetated portion of the island. Soil becomes relatively richer (less sandy), thanks to the contribution of decaying vegetation not moved about by wind and water. Larger hardwoods, cedar, and pine take hold, creating a forest atmosphere.

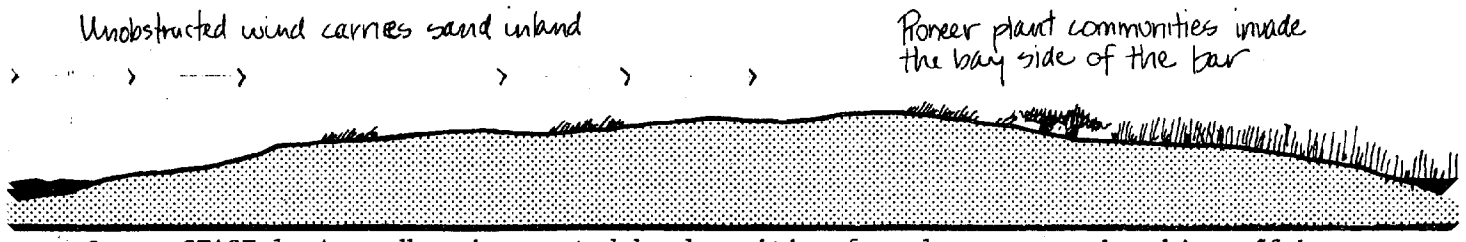
DYNAMICS OF A SHORE

Despite a long-standing fascination with sea-side change, man has had to rely on recent science for adequate descriptions and explanations. "Where does sand come from? Where will this grain be tomorrow?" Questions of this sort have certainly puzzled people since they first lived near oceans. Thousands of questions remain, but much of the puzzle has been pieced together.

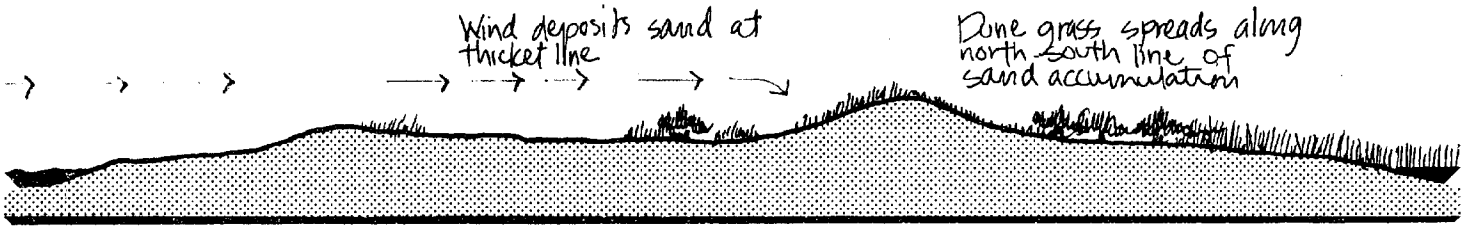
The grain of sand on a Georgia beach may have been part of a boulder on the Maine coast or a granite outcrop of the Appalachians. Ground, crushed, and worn away by natural processes, finally carried to a marine home, it remains in the ocean environment until wearing away completely.

Once in the ocean, sand moves about at the will of current. Near shore, the so-called "littoral drift" plays a major role.

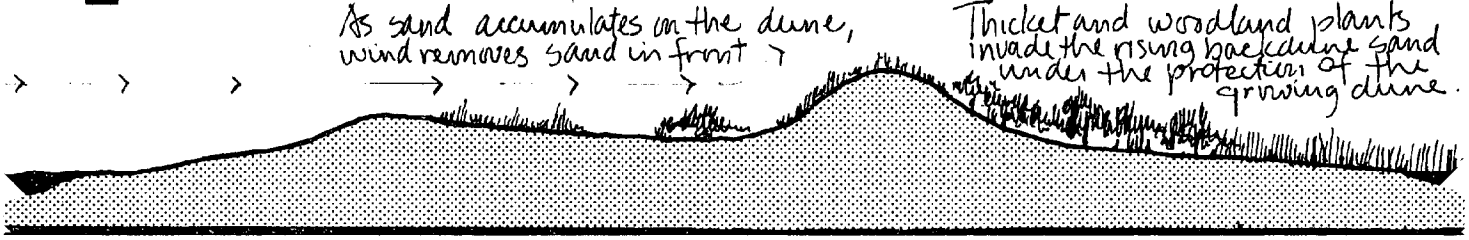
Littoral drift is the conveyor belt-like force which makes everything, at least close off the United States East Coast, move north or south depending on local conditions. As waves move close to shore, they deposit sand and sediment in off-shore shoals. Having thus begun to build, shoals break the force of incoming waves, slowing down the water and causing even more deposition of material on the shoal. Thus developed, shoals become sources of sand for nearby beaches and dunes. Three major forces carry shoal-bound sand to the beach - tidal actions, waves and littoral drift. An additional beach-building force is the ocassional "migration" of shoals to the shore.



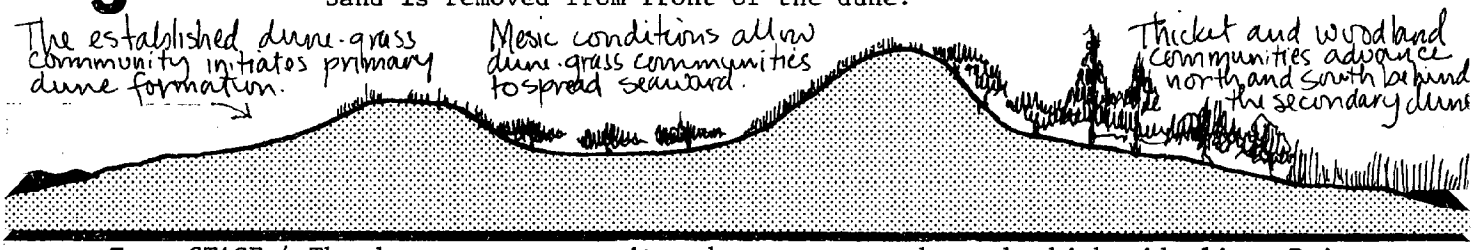
1 STAGE 1 A sandbar is created by deposition from large waves breaking offshore.



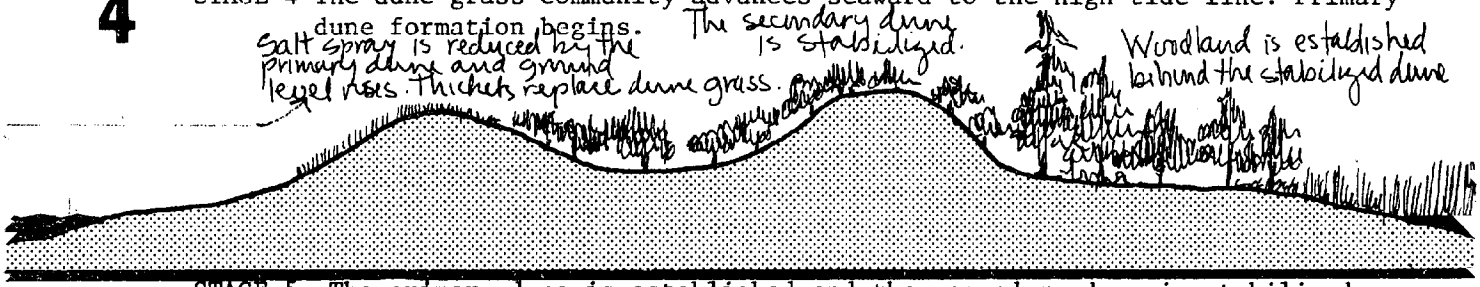
2 STAGE 2 Dune formation begins at the thicket line with deposition of windblown sand.



3 STAGE 3 Secondary dune formation begins as the dune-grass community is established. Sand is removed from front of the dune.



4 STAGE 4 The dune-grass community advances seaward to the high tide line. Primary dune formation begins.



5 STAGE 5 The primary dune is established and the secondary dune is stabilized.

The Process of Dune Formation

Source: Design with Nature, by Ian McHarg

On the beach, onrushing waves deposit water-born sediment, retreating waves take some away. Likewise, tides give and take. On-shore winds carry sand up to the berm, where it may continue to move back into the dunes or blow up or down-beach within the berm.

Dune-building begins as sand is carried by winds behind the berm, collecting at clusters of low-lying grass or even dead marine plants left behind by high water. Grasses continue to flourish, capturing additional sand with their stalks and holding the growing young dune in place with matted root systems.

As the dune grows in height, wind removes sand from in front and carries it over and well behind the dune, where it comes to rest in the clutches of another cluster of grass. There, protected from direct wind by the first dune, a second dune begins to form. Between the two is the slough, also protected from direct wind, where grasses and shrubs can take hold.

The seaward dune continues to get buffeted more by eroding winds, whereas the dune behind has somewhat more protection. Woody plants and thickets begin migrating seaward from inland, afforded new wind protection by the forming dune sequence. These come first to the hind dune and, in combination with existing grasses and shrubs, help trap more sand than before. The seaward dune periodically loses more sand to attacks of high water and wave action than its landward counterparts. This will be described later.

In front of the seaward dune, grass clusters start to grow, in turn forming new dunes. Thus, dunes actually form progressively toward the ocean, until they reach the berm and beach.

As dunes grow higher and larger, they also tend to grow together. Thus,

they form into continuous rows paralleling the beach, rather than remaining isolated mounds.

Finally, the seaward advance of woody plants and thickets, not needing continual sand deposition, creep onto backdunes. They continue to move forward, gradually stabilizing backdunes as they go.

So far, dunes have been referred to as foredunes and backdunes. Actually, a more accurate description, recognizing dune dynamics, divides dunes into active and stable. Dunes remain active, that is, in a state of flux, until finally stabilized by seaward-moving inland plant communities.

But active dunes are active in many ways. They play the vital role of sand reservoirs. On calm days, and during the summer months, active dunes accumulate sand, and grow. In times of storm and high water, however, dune-robbing waves take the sand away. Some deposits back on the beach, some is taken back to sea and deposited on off-shore shoals, some gets taken further out. Thus, a cycle of "dynamic equilibrium" takes place. Each participant - shoal, beach, berm, active dune, and stable dune - acts in concert with the others in what has been described as a "sand-sharing system." None can exist over the long haul without the others. Nor can dunes grow and function without the successive vanguards of vegetation. Each assumes a specialized function. Grasses, herbs, and low vines start the process; shrubs and thickets take over for a spell; woody varieties finally inherit and stabilize the mature dune. To interfere with dune vegetation is to invite trouble. Slight disturbance of the mantle, such as harvesting a few sea oats on an active dune, invites a "blowout" (wind carries unprotected sand away, creating a gap) or "washout" (wave and water erosion). More complete vegetative damage or removal practically guarantees dune destruction, and with it, beach erosion.

DUNES - FAITHFUL SERVANTS TO MAN

Whether out of stupidity or innocence, people have breached dunes from Massachusetts to Florida. After all, dunes block the ocean view and make it more difficult to clamor out onto the sunny beach. They are choice land, as close as you can get to the ocean. Why not just go ahead and build on them? Why not, indeed! Dune destruction inevitably brings undesirable consequences.

A healthy dune system protects inland properties from strong onshore winds. Without the dunes as wind breaks, winds of every intensity take heavier tolls than they would otherwise. Homes, not sandhills, absorb the full brunt.

Likewise, dunes prevent storm waters and suring waves from slamming further inland. Storm waves pack tremendous power, often sufficient to flatten anything in their paths. As wave hits dune, its energy is diffused into, over, and around the dune. In short, it loses some of its punch. Successive dune rows further absorb wave energy. Even in times of extreme violence, the dune system is able to check significantly the severest wave force.

Many barrier islands along the East Coast have destroyed dunes with development in years past. Atlantic City and Miami Beach are two notable examples. In such cases, storm damage is far greater than it would have been with dunes present. Not only are structures built on former dunes endangered - dune destruction imperils those behind, who suddenly find themselves without their former safety and protection.

Dune destruction also interferes with the sand reservoir (i.e., the sand-

sharing system described previously). Storm waves which formerly grabbed dune sand must satisfy their greed somehow. Propelled by tremendous force, they slam against the first "immovable" object they encounter. Thus discouraged, they dig downward. Erosion of the upper beach and berm begins, flattening the beach slope. Following the storm, with no dunes to store new sediment supplies, erosion continues. Sooner or later the sea invites itself in. The battle then becomes keeping the sea out - a once broad beach either shrinks or disappears entirely.

Man-made structures to halt or reverse these unfortunate trends seldom produce adequate long-range results. Sea walls and revetments built to function as water breaks can't replace the multiple functions once serve by dunes. They inhibit sand transfer from beach to dune, so beach sand can go only one way - out to sea. Beach integrity becomes dependent upon continual new sand deposition from shoals. Should the shoals shift or become depleted, the beach can't survive. Groins and jetties, built perpendicular to the beach out into the ocean, may trap sand carried by littoral drift and wave action. Though the beach may build back up (accrete) as a result of jetties and groins, beaches downdrift no longer receive their former quota. These, in turn, may erode. Groins and jetties act as sand bandits, "robbing Peter to pay Paul."

THE ST. SIMONS SITUATION

St. Simons Island has far less beach than it did twenty or thirty years ago. From Arnold Drive south to the village, seawalls hold back a threatening sea; no beach remains. At Gould's Inlet beach erosion has continued despite construction of the seawall, designed to protect property from the grating effects of inlet currents.

The Gould's Inlet seawall appears doomed. Tides and currents have undermined the wall. From Fifteenth Street south to about Olive Way, considerable "accretion" has occurred during the past three decades. Accretion involves the deposition of more sediment (sand) than is lost through natural process. It is the opposite of erosion.

Source of much of the sediment is Pelican Spit, Georgia's largest offshore sand shoal, located about six miles northeast of St. Simons at the mouth of the Hampton River. Littoral drift has carried tons of sand southward, benefitting both Sea Island and St. Simons.

As aerial photographs show clearly, a major shoal has formed, too, off St. Simons, around the mouth of Postell Creek (Gould's Inlet) and south. This shoal apparently traps southward-moving material from Pelican Spit.

Discharges from Gould's Inlet shift periodically. For a time, they will flow south parallel to the St. Simons shoreline. At these times, the shoal builds in size, north and northeast of St. Simons. Inlet discharge inhibits onshore flows from carrying sediment further south. At other times, Gould's Inlet discharges more easterly and northeasterly, permitting tides, waves and

drift to carry sand previously "stored" to the shore. This has been the pattern of accretion.

The accreted area has developed an excellent dune system (north of the Coast Guard Station) capable of repelling heavy storms that might otherwise cause considerable damage to the East Beach Subdivision. The beach south of the Coast Guard Station has received some recent deposition from shoals. Also, the accreting area extended so far seaward, vis-a-vis the area to the south, that its extremities have begun to break off and "backfill." From the Coast Guard Station south to Arnold Drive, no active-stable dune system (or sequence) exists. Violent storms would probably cause far more damage to properties in this stretch than in the accreting area, protected by dunes. Fortunately, major storms have tended to spare St. Simons Island in recent history - no indication, however, that nature will be so benevolent in the future.

At this time it appears likely that St. Simons' shore area will experience additional development. Protection of existing development, future development, and the beach itself, depends heavily on dune protection. Where a healthy dune system does not exist, it must be established artificially. St. Simons can protect itself by cooperating with natural processes. It must be a matter of public policy to follow this course of action. Accordingly, the following recommendations and legal provisions are offered.

RECOMMENDATIONS AND LEGAL PROVISIONS

Preliminary recommendations were presented to the Glynn County Commission at the May 17, 1973, meeting. Thereafter, further refinement of the recommendations produced three proposed legal provisions dealing with Glynn County's beaches and dunes. For reference, the three legal provisions correspond to the initial recommendations as follows:

Legal Provision	Preliminary Recommendation(s)
Beach and Dune Protection District (Amendment to Glynn County Zoning Ordinance)	Preliminary recommendations #1, #2, #3, #5
Building Code Amendment	Preliminary Recommendation #4
Vegetation and Dune Disturbance Ordinance	Preliminary Recommendations #6, #7, #8

PRELIMINARY RECOMMENDATIONS

GLYNN COUNTY

DUNE STUDY COMMISSION

MAY 17, 1973

Primary Recommendations and Conclusions

1. In areas with established dune systems, including an active and a stabilized dune, development should occur only landward of the most seaward stabilized dune.

2. In unstable areas without established dune systems, development should occur only after the establishment of an active and stable dune system.

3. In order to enforce the preceding recommendations, a "Beach and Dune Protection District" should be created in the Glynn County Zoning Ordinance.

4. Special Building Code provisions should be established, applicable to those areas of the "Beach and Dune Protection District" in which construction is made permissable.

5. Within the "Beach and Dune Protection District," all physical improvements, such as roads, seawalls, jetties, etc., should be conditional

uses, subject to prior review of their probable effects on the natural system.

Related Recommendations and Conclusions

6. A Glynn County "Beach and Dune Vegetative Protection Ordinance" should be enacted.

7. Signs, warning the general public not to interfere with the dunes and their natural vegetation, should be posted immediately.

8. All non-authorized motor vehicles should be banned from the beach and dune area.

Proposed Legal Provisions

Building Code Amendment

Glynn County currently employs the Southern Standard Building Code. The code appears sufficient to protect structures from hurricane damage; and assure proper placement, spacing, size and depth of pilings.

It does not include sufficient provision for protection against local flooding, however. Recent information gathered by the U.S. Weather Service suggests that flooding may be a serious problem in the shore area.[3] The following table illustrates the likelihood of flooding:

Frequency	Height of Flood Water Above Mean Sea Level
Once every 10 years	7'
Once every 25 years	9.5'
Once every 100 years	13.8'

To protect future structures from the "100-year flood", the following building code provision is suggested.

BUILDING CODE AMENDMENT

101. The first floor of all permanent structures constructed within the Beach and Dune Protection District of the Glynn County Zoning Ordinance shall

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[3] Frequency Surge Profiles on the Atlantic Coast, U.S. Weather Service

be a minimum of 14.0 feet above Mean Sea Level, as defined by the United States Coast and Geodetic Survey.

Vegetative and Dune Disturbance Ordinance

To protect dunes and dune vegetation, vegetation and dune disturbance must be made illegal. In cases where a person feels it necessary, for whatever reasons, to disturb dunes, he must receive a permit from the County beforehand.

The area included in this ordinance is that lying seaward of the "Beach and Dune Development Setback Line," as defined in the proposed "Beach and Dune Protection District" amendment to the Glynn County Zoning Ordinance.

VEGETATION AND DUNE DISTURBANCE

101. Dune and Vegetative Protection; Permit Requirement

It shall be unlawful for any person, firm, or corporation in any manner to damage, destroy, or remove any sand dune, or part thereof, lying seaward of the Beach and Dune Development Setback Line as defined by the Glynn County Zoning Ordinance, or to kill, destroy, remove or alter the form of any trees, shrubbery, grass or other vegetation growing seaward of said line, without first having obtained a permit from the Glynn County Building Official.

102. Criteria for Granting Permit

No permit, as required in Section 101, shall be granted unless the applicant shall have sufficient proof for the Glynn County Building Official that the particular action, damage, destruction, or removal proposed will not materially weaken the dune or reduce its effectiveness as a means of protection from the effects of high wind and water, taking into consideration the height, width, and slope of the dune or dunes and the amount

and type of vegetation thereon. Such proof shall be kept as public record and filed with the application.

Beach and Dune Protection District
(Amendment to Glynn County Zoning Ordinance)

Glynn County desperately needs a zoning provision dealing specifically with its immediate shore areas. The proposed ordinance is designed to assure proper land use, compatible with natural conditions and natural shore-line processes.

The first provision establishes and defines a "Beach and Dune Development Setback Line." This section should be made a part of the "Definitions" section of the Glynn County Zoning Ordinance. Areas A and B mentioned are defined in Section 102 of the zoning amendment, which follows.

The setback line, seaward of which no development can take place, is to be drawn 40' behind the first (most seaward) stable dune row. This will assure adequate continued natural functioning of the dune system. Ideally, successive rows of stable dunes should be retained, for maximum protection of inland properties. The setback line represents the closest conceivable point to which development can proceed without permanent interference with the dunes.

Section 101 of the proposed Beach and Dune Protection District spells out the intent of the district.

Section 102 subdivides the district into two areas.

Area A is that area with an established dune sequence; Area B lacks such a sequence. These areas can be mapped, based on observation.

Section 103 prohibits land alteration seaward of the setback line.

Section 104 requires establishment of an active-stable dune sequence prior

to any development in Area B. Subsection (b) enumerates the criteria for establishment of dune sequences. Subsection (c) requires the County to develop more detailed specifications for Area B dune establishment before the effective date of the ordinance. The engineering department and planning commission can accomplish this work in the required time. Subsection (d) prohibits use of local materials for new dune establishment without County Commission approval. This prevents damaging grading or cut/fill operations in the Beach and Dune Protection District.

Section 105 enumerates permitted uses in both permitted and non-permitted development areas. In conjunction with the Building Code Amendment, all permanent structures must be on pilings, rather than on fill, to achieve the required 14.0 feet above mean sea level. This will allow high water to pass beneath structures, rather than being diverted to other properties (as would be the case if filling were allowed).

Section 106 enumerates conditional uses and criteria for determining whether or not to allow such uses.

Section 107 requires the County Commission to reassess all boundary lines at least once every five years. Due to the changing, shifting character of the area, such reassessment will assure equity to property owners and viability of the district.

Section 108 makes the effective date of the ordinance sixty days after passage. This will allow time for citizens to be made aware of its provisions, and for the County to develop administrative procedures and more detailed dune-establishment specifications.

DEFINITION

Beach and Dune Development Setback Line. A Beach and Dune Development Setback Line shall be established as appropriate, for areas within the Beach and Dune Protection District. The purpose of the Setback Line is to delimit those areas, within each area, in which development is permissable and non-permissable.

a. Development Setback Line, by Area

1. Area A Development Setback Line. The Development Setback Line for Area A shall be located forty (40) feet landward of the crest of the most seaward stable dune, as determined by the Glynn County Commission, following consultation with the Brunswick-Glynn County Joint Planning Commission and appropriate other local and State officials.

2. Area B. Development Setback Line. The Development Setback Line for Area B shall be located forty (40) feet landward of the crest of the most seaward stable dune (pending satisfaction of provisions in Sectio 104), as determined by the Glynn County Commission, following consultation with the Brunswick-Glynn County Joint Planning Commission and appropriate other local and State officials.

BEACH AND DUNE PROTECTION DISTRICT

101. Intent of District. It is the intent of this Section that development within the Beach and Dune Protection District be protected from tides and high water storm surges, winds, and erosion; that development within the Beach and Dune Protection District occur without adversely affecting the

existence or natural functions of the beach and dune areas; and the development within the Beach and Dune Protection District occur without subjecting property adjacent and further inland to additional potential danger from actions of wind and water.

102. Beach and Dune Protection District - Establishment of Subdistricts.

a. The Beach and Dune Protection District shall comprise subdistricts, as follows:

1. Area A - Accreting or stable area with an active-stable dune sequence

2. Area B - Accreting or stable area lacking an active-stable dune sequence

103. Development Setback Line - General Provision. No development, grading, filling or land alteration shall occur seaward of the Beach and Development Setback Line.

104. Establishment of Active and Stable Dune Sequences - Area B Only.

a. In Area B, no development shall occur until the developer successfully establishes Active and Stable Dune Sequences, followed by official designation of the Beach and Dune Development Setback Line based thereupon.

b. Area B Active and Stable Dune Sequences shall conform, as nearly as practicable, to the characteristics of Active and Stable Dune Sequences present in Area A, including, but not limited to, the following considerations:

1. Dune height

2. Dune row spacing

3. Vegetation type

4. Vegetation density

5. Width of high tide beach (distance between mean high tide line and crests of most seaward row of active dunes)

6. Slope and orientation of dunes

c. The Glynn County Commission shall develop, as may be deemed necessary, specifications for Active and Stable Dune Sequence establishment based on the items in Section 104(b). Such specifications shall be developed prior to the effective date of the Beach and Dune Protection District.

d. Sand and vegetative materials for use in establishing Active and Stable Dune Sequences shall not be taken from elsewhere within the Beach and Dune Protection District, without approval of the Glynn County Commission.

1. In determining whether or not to approve a request to utilize sand and vegetative materials in establishing Active and Stable Dune Sequences, the Glynn County Commission shall consider the effects of such proposed action on existing dunes and beaches; and on the potential for added wind, water or wave damage.

105. Permitted Uses.

a. In those portions of the Beach and Dune Protection District where development is allowed, permitted uses shall conform to those existing as illustrated on the official Glynn County Zoning Map at the time of the enactment of this amendment.

1. All permanent structures shall be built a minimum of 14.0 feet above mean sea level by means of pilings rather than filling.

b. In those portions of the Beach and Dune Protection District where development is not allowed, permitted uses shall include:

1. Boating
2. Swimming
3. Sunbathing
4. Picnicking
5. Other active and passive recreational uses not inherently destructive to the existence or integrity of the beach and dunes.

106. Conditional Uses. The following uses shall be permitted in the Beach and Dune Protection District on a conditional basis, subject to the conditions set forth:

a. Seawalls, jetties, bulkheads, revetments, groins, breakwaters, roads and streets, utility lines, sewer lines, provided that:

1. The applicant for a conditional use permit prove conclusively that the proposed use will have no significant short- or long-term adverse environmental effects, including increasing potentials for beach erosion; interference with existing established dune sequences; and exposure of inland properties to wind, water or wave damage.

107. Reassessment of Beach and Dune Protection District Boundaries. The Glynn County Commission shall reassess the location of all boundary lines associated with the Beach and Dune Protection District no less frequently than once every five (5) years from the effective date of this ordinance, and shall, as deemed necessary, readjust boundary lines accordingly. Boundary lines reassessed shall include:

a. Beach and Dune Protection District Boundaries
b. Beach and Dune Development Setback Line
c. Boundaries delimiting Areas A and B

108. Effective Date. The effective date of the "Beach and Dune Protection District" amendment to the Glynn County Zoning shall be sixty (60) days from the date of adoption of said amendment.

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